

## COLLABORATIVE DATA PUBLICATION UTILIZING THE OPEN DATA REPOSITORY'S (ODR) DATA PUBLISHER.

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**Introduction:** For small communities in diverse fields such as astrobiology, publishing and sharing data can be a difficult challenge. While large, homogenous fields often have repositories and existing data standards, small groups of independent researchers have few options for publishing standards and data that can be utilized within their community.

In conjunction with teams at NASA Ames and the University of Arizona, the Open Data Repository's (ODR) Data Publisher has been conducting ongoing pilots to assess the needs of diverse research groups and to develop software to allow them to publish and share their data collaboratively.

**Objectives:** The ODR's Data Publisher aims to provide an easy-to-use and implement software tool that will allow researchers to create and publish database templates and related data. The end product will facilitate both human-readable interfaces (web-based with embedded images, files, and charts) and machine-readable interfaces utilizing semantic standards.

**Characteristics:** The Data Publisher software runs on the standard LAMP (Linux, MySQL, Apache, PHP) stack to provide the widest server base available. The software is based on Symfony ([www.symfony.com](http://www.symfony.com)) which provides a robust framework for creating extensible, object-oriented software in PHP.

The software interface consists of a template designer where individual or master database templates can be created (see Fig. 1). A master database template can be shared by many researchers to provide a common metadata standard that will set a compatibility standard for all derivative databases. Individual researchers can then extend their instance of the template with custom fields, file storage, or visualizations that may be unique to their studies. This allows groups to create compatible databases for data discovery and sharing purposes while still providing the flexibility needed to meet the needs of scientists in rapidly evolving areas of research.

**Research:** As part of this effort, a number of ongoing pilot and test projects are currently in progress. The Astrobiology Habitable Environments Database Working Group is developing a shared database standard using the ODR's Data Publisher

and has a number of example databases where astrobiology data are shared<sup>1</sup>. Soon these databases will be integrated via the template-based standard. Work with this group helps determine what data researchers in these diverse fields need to share and archive. Additionally, this pilot helps determine what standards are viable for sharing these types of data from internally developed standards to existing open standards such as the Dublin Core (<http://dublincore.org>) and Darwin Core (<http://rs.twdg.org>) metadata standards.

Further studies are ongoing with the University of Arizona Department of Geosciences where a number of mineralogy databases are being constructed within the ODR Data Publisher system.

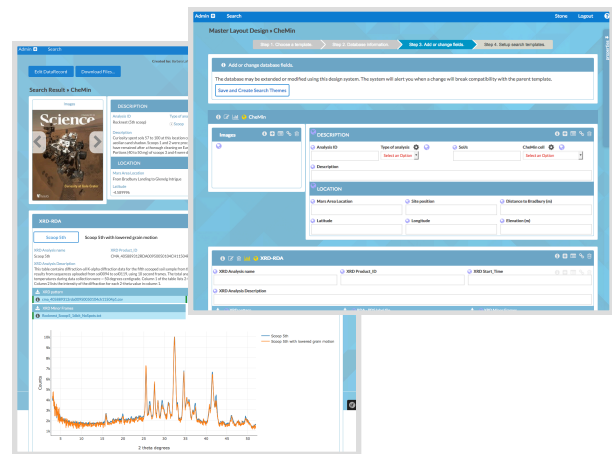


Figure 1. Examples of a data record view (left) and design of a database template (right).

**Conclusions:** Through the ongoing pilots and discussions with individual researchers and small research teams, a definition of the tools desired by these groups is coming into focus. As the software development moves forward, the goal is to meet the publication and collaboration needs of these scientists in an unobtrusive and functional way.

**References:** [1] Lafuente B. et al. (2017) Abscon 2017, submitted.

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